

# CASE STUDY

## Hertz Puts You In The Driver's Seat — And Methanol In Your Tank



*The Hertz Corporation rental car counters in the Los Angeles area now offer a new option: customers can rent a flexible-fuel vehicle (FFV) that runs on either methanol or gasoline. The California Low-Emission Vehicle (LEV) Program motivated Hertz to plunge into the alternative fuel vehicle (AFV) market. Methanol FFVs are easily obtained through local California dealerships, and special financial incentives offset the incremental purchasing and operating costs. Customers see no appreciable difference in operation between the FFVs and gasoline-powered vehicles.*

### ***Making the Choice***

Anticipating the requirements of California's LEV Program, Hertz decided to add AFVs to its Los Angeles area fleet. The LEV Program requires vehicles sold in California to meet increasingly lower fleetwide average emission standards, beginning with the 1993 model year.

Although the LEV Program applies to original equipment manufacturers (OEMs), Hertz became interested in AFVs early on, for three reasons. First, its parent company is Ford Motor Company, an OEM covered by the LEV Program. Second, as Charles Shafer, Vice President of Hertz's Western Region, explains, "As a good corporate citizen, Hertz was interested in the clean air benefits that would result from the use of AFVs." Shafer also says the company expected AFVs in general, and M85 FFVs in particular, to have lower emissions and thus be better able to meet the LEV standards. Third, Hertz was eager to gain experience with new AFV technologies before those vehicles became commonplace in the California market. So, in 1992, Shafer decided to purchase AFVs for the company's Los Angeles area fleet.

One question remained: what type of AFV should Hertz buy? Hertz looked at natural gas and electric vehicles but considered their range inadequate for

### ***Building a Rental FFV Fleet***

Hertz purchases both conventional vehicles and AFVs in the same way — through the Hertz dealer network. As it does with most other vehicles, Hertz buys its FFVs under a buy-back arrangement with the OEMs. After 10-11 months, or at about 16,000-18,000 accumulated miles, Hertz sells the FFVs back to the OEMs at a discounted price. According to Linsteadt, maintaining the traditional manufacturer repurchase agreements for the methanol FFVs was a critical difference from other AFVs. Without these agreements, Hertz would have faced an uncertain, new resale market for its AFVs.

In addition, the OEMs have extended the same warranty protections for the FFVs as Hertz receives for similarly equipped gasoline-powered models.

Hertz has purchased only M85 FFV sedans: Dodge Intrepid and Ford Taurus. Hertz pays essentially no incremental cost. Ford charged the same price for both the FFV and the gasoline versions of the Taurus, while Dodge offered a manufacturer's cash rebate that fully offset the incremental list price of the Intrepid FFV.

Hertz has built its FFV fleet gradually. Since 1992, the company has operated a total of 1,913 FFVs in its Los Angeles area fleet. In 1992, Hertz placed its first order for 100 methanol vehicles 1993 — Ford Taurus FFVs — that were assigned to the Sacramento branch offices. In 1994, Hertz purchased 200 Ford Taurus FFVs for its Los Angeles branch office and another 100 for its Sacramento office. Hertz added 413 Ford Taurus and 350 Dodge Intrepid FFVs in 1995 and 750 Ford Taurus FFVs in 1996.

### **HERTZ METHANOL FFV PURCHASES**

Year	Number of FFVs			Hertz Branch Location
	Ford Taurus	Dodge Intrepid	Total	
1993	100	—	100	Sacramento
1994	100	—	100	Sacramento
	200	—	200	Los Angeles
1995	413	350	763	Los Angeles
1996	750	—	750	Los Angeles
Total <sup>a</sup>	1,563	350	1,913	—

<sup>a</sup> Hertz keeps its FFVs for only 10-11 months before reselling them to OEMs. Totals reflect FFVs Hertz has purchased since the inception of its FFV program, not the total number of FFVs currently in the Los Angeles area fleet.

their customers. Stephen Linsteadt, Director of Fleet Operations and Yield Management for Hertz's Western Region, says that the company felt that electric vehicles were not yet developed enough to make a significant entry in the automotive market. That consideration led Hertz to methanol vehicles, which have several advantages. Hertz officials expected the driving range of methanol vehicles to be about 225 miles, which was sufficient to meet customer needs. Methanol FFVs, capable of running on either methanol or gasoline, were available from several OEMs, including Ford. These vehicles use the same fuel tank to operate on M85, gasoline, or a mixture of the two fuels. The ability to fuel rental cars with either methanol or gasoline was important to Hertz because access to alternative fuels is limited. So, the company decided to purchase FFVs that customers could refuel conveniently on gasoline. The incremental cost of methanol FFVs (over similarly equipped gasoline-powered models) was modest compared with that for other AFVs.

### ***Refueling at On-Site M85 Fuel Pumps***

Rather than face the uncertainty of an underdeveloped M85 fueling infrastructure, Hertz added M85 pumps to existing fueling facilities at its five Los Angeles area branches. A \$500,000 grant from the South Coast Air Quality Management District (AQMD) covered the full cost of the new pumps. Hertz encountered no unusual difficulties during the installation. From start to finish, the process took 60 days: 30 days to obtain permits and inspection and 30 days to actually place the pumps. This lead time is about the same as that needed for gasoline refueling facilities. The only additional step for the methanol pumps was a California Energy Commission inspection for materials compatibility with methanol in the fuel delivery system.

Hertz purchases M85 through the California Energy Commission Methanol Reserve at a price of \$0.50 per gallon, compared with \$1.10 per gallon for California reformulated gasoline (RFG). Because M85 contains 58% of the energy in California RFG, however, the cost per mile is \$0.64 for methanol as compared with \$0.55 for RFG.

To extend the driving range, Ford builds FFVs with 18-gallon fuel tanks, instead of the standard 16-gallon. The tanks can hold M85, gasoline, or any mixture of the two fuels. Customers may not refuel their rental cars with M85 at retail methanol stations if they do not have a special M85 credit card. Therefore, Hertz offers customers a fuel purchase option: when drivers pick up their cars, they may purchase a tank of methanol, in advance, to replace the fuel they will use. The charge is the same as for refilling with gasoline — Hertz charges the current retail price for gasoline. The customers return the FFVs as empty as possible so that they can be refueled at Hertz' M85 pumps. With this arrangement,

### **Fleet Facts**

**Fleet Type:** Rental car agency

**Alternative Fuel:** M85 (85% methanol, 15% gasoline)

**AFVs:** 1,913 flexible-fuel sedans — Ford Taurus and Dodge Intrepid — purchased since 1993

**Location:** Los Angeles and Sacramento, California



the FFVs are almost always driven on a mixture of the residual gasoline and the M85 refill.

#### ***Promoting FFVs to Customers***

Hertz and South Coast AQMD developed a customer brochure, *Keys to a Cleaner World*, which explains what FFVs are and why Hertz is offering them. Customers are told that the M85 FFVs operate in the same way as gasoline vehicles, and they are requested to return the FFVs with empty tanks. The brochure also asks drivers to fill in an evaluation survey form. According to Linsteadt, "Customers love them [FFVs], because they have superior perfor-

mance, and they contribute to clean air." The vehicles are available to all Hertz customers, and they can be requested when reservations are made.

#### ***Maintaining a Methanol Fleet***

Hertz performs all maintenance of its fleet, including M85 FFVs, in-house. Ford Motor Company has trained all Hertz mechanics to maintain the FFVs. Ford also operates a Methanol Hotline to answer special questions and handle orders for special fuel-related parts.

Hertz keeps FFVs for 10-11 months, a longer service life than the 6-9 months it keeps conventional vehicles. Because

### **SUMMARY OF NET COSTS**

#### ***Costs***

Refueling stations		\$ 500,000
Per FFV		
Oil	\$ 76.20	
Downtime	\$ 12.36	
Special parts	\$ 7.55	
Methanol fuel	\$ 90.00	
Repurchase loss	<u>\$ 10.00</u>	
Subtotal per vehicle	$\$196.11 \times 1,913 \text{ FFVs} =$	\$ 375,158
<b>Total Costs</b>		<b>\$ 875,158</b>

#### ***Financial Incentives***

1993 – Sacramento AQMD	\$ 100,000
(\$1,000 per FFV for 100 FFVs)	
1994 – California Energy Commission	\$ 80,000
(\$400 per FFV for 200 FFVs)	
1995 – South Coast AQMD	\$ 500,000
(for construction of methanol refueling facilities)	
1996 – American Methanol Institute	\$ 10,000
(\$100 per FFV for 100 FFVs)	
1996 – AQMD	<u>\$ 10,000</u>
(\$100 per FFV for 100 FFVs)	

**Total Financial Incentives** \$ 700,000

**Net Costs** = \$875,158 – \$700,000 = \$ 175,158

**Net Incremental Cost per**

**FFV** =  $(\$175,158) \div (1,913 \text{ FFVs}) = \$ 91.56/\text{FFV}$

of these short vehicle service lives, Hertz mechanics have not had to address any long-term problems due to wear and tear on the FFVs. Early problems involved fuel pumps, fuel tanks, and methanol sensors, but these have been corrected.

Hertz has incurred some extra cost in maintaining its M85 FFVs. The vehicles require a special oil that initially cost \$9-12 per quart but has now been reduced to \$5.38 per quart, compared with about \$1 per quart for conventional oil. Linsteadt estimates that over the service life of the FFVs, the incremental cost for special oil totals \$76.20. Also, Hertz has experienced some downtime waiting for special parts, which Linsteadt estimates to cost an average of \$12.36 per FFV over its 10- to 11-month service life. The OEMs have increased their parts inventories to help alleviate this problem. The special parts cost \$7.55 (average net of warranty) more than what Hertz would have incurred to service gasoline-powered vehicles over the same time.

#### ***Taking Advantage of Financial Incentives***

Financial incentives helped Hertz offset the cost of operating FFVs in its rental car fleet. Before applying incentives, Hertz faced incremental costs of almost \$900,000 for its investment in the FFVs. Additional maintenance costs amount to \$96.11 per FFV over its service life — \$76.20 for oil, \$12.36 for downtime, \$7.55 for special parts. Other additional costs stem from fuel (\$90.00 per FFV) and Hertz' loss on ineligible repurchase units (\$10.00 per FFV). The incremental costs add up to \$196.11 per FFV over its 10- to 11-month service life.

Sacramento AQMD provided \$1,000 per FFV for the first 100 FFVs purchased for the Sacramento branch office, for a total grant of \$100,000. In 1994, the California Energy Commission invested

\$400 per FFV in incentives for the first 200 FFVs purchased for the Los Angeles branch office, for a total grant of \$80,000. In 1995, South Coast AQMD provided another \$500,000 to completely defray the cost of installing M85 pumps at Hertz's five Los Angeles locations. Finally, in 1996, South Coast AQMD and the American Methanol

#### **By the Numbers**

<b>Fuel Cost:</b>	\$0.064/mile for methanol \$0.055/mile for RFG
<b>Fuel Tank Capacity:</b>	18 gallons
<b>Fuel Economy:</b>	12.5 mpg
<b>Range on M85:</b>	225 miles
<b>Incremental Cost:</b>	\$92/FFV

Institute each offered Hertz \$100 for each of 100 of the last order of FFVs from Ford, for a total grant of \$20,000.

After applying these incentives, Hertz's incremental investment fell to a little less than \$200,000. When averaged across the 1,913 FFVs in the Los Angeles area fleet, that incremental investment becomes \$91.56 per FFV. In Linsteadt's opinion, "Without these incentives, Hertz would not have volunteered to use M85 FFVs in its fleet."

#### ***In-Use Performance***

Hertz customers are the ultimate arbiters of how well the FFVs perform. Linsteadt summarizes customer opinion of the FFVs, "Customers are extremely satisfied with how well the FFVs perform and often request them as their car of choice." Customers report superior acceleration in the FFVs, but no other differences in performance nor any greater frequency



of on-road breakdowns compared with gasoline-powered vehicles. Even with the larger fuel tanks (18 rather than 16 gallons), customers have not reported any significant concerns about cargo space. Moreover, customers have not questioned the safety of the FFVs.

The FFVs get about 12.5 miles per gallon when operating on M85, compared with 20.0 miles per gallon on California RFG. However, because FFVs operate on a mixture of M85 and RFG, customers generally do not notice any difference in the fuel economy of the cars. On average, the FFVs achieve a range of 225 miles on 18-gallon tanks.

On the basis of the amount of M85 fuel Hertz has used to refuel the FFVs and the accumulated mileage, Linsteadt estimates that the FFVs run on M85 about 10-15% of the time.

### ***In Conclusion***

Hertz is pleased with the way its FFV program has worked. Not only are customers satisfied with the performance of the FFVs, but they feel that they are helping to improve the environment. This feeling can only create greater goodwill for the company. Hertz has no regrets and would undertake the same effort again. Linsteadt remarked, "Overall, the program has been very good. It allowed us to gain experience with new fuel technology, and it was widely accepted by customers."

Linsteadt emphasized the importance of the financial incentives. Had additional funding been available, Hertz would have expanded its use of FFVs in the Los Angeles area fleet even more.

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### ***Disclaimer***

This case study is intended only to illustrate approaches that organizations could use in adopting AFVs in their fleets. The data cited here, although real experience for the fleet discussed in this case study, may not be replicated for other fleets. For more comprehensive information on the performance of AFVs and other related topics, please call (800/423-1363) or e-mail (hotline@afdc.nrel.gov) the National Alternative Fuels Hotline. To learn more about DOE's role in alternative-fuel vehicle research, visit the Alternative Fuels Data Center on the World Wide Web at <http://www.afdc.doe.gov>.

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